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## Editorial: Zoology is dead, long live zoology!

Once upon a time, the division of biological disciplines was simple. You were either an animal biologist (zoologist) or a plant biologist (botanist). Nowadays, scientists seem to rarely use the term zoology in professional descriptions. So, why have zoologists stopped calling themselves zoologists? And what does this mean for biology in general?

I am addressing these questions because the journal you are reading is going into its 10<sup>th</sup> year under the current name, *Animal Biology*. As the official journal of the 140-year-old Royal Dutch Zoological Society (founded 1872), it first appeared in 1934 as *Archives Néerlandaises de Zoologie*. Interestingly, despite its French title most articles were written in English or German. The journal was renamed as *Netherlands Journal of Zoology* in 1953 and got its current title in 2003. In other words, *Animal Biology* can boast a rich zoological tradition.

So, what happened to zoology over the past century? Obviously, due to the enormous breadth of the field, zoology has split up. The numerous (sub)disciplines that emerged from it now focus on different scales and biological levels. At the far ends one finds, for example, small-scale molecular disciplines and large-scale population and ecosystem approaches. This specialisation into different biological disciplines has been a necessary and extremely useful step for the full development of this broad field of science. At these different scales and biological levels, this has led to detailed insights into biological processes of animals within each discipline. However, this specialisation has come at a cost: each discipline evolved to become a large and respected field of research in itself, which inevitably resulted in some detachment from the discipline(s) it evolved from.

These different disciplines do reinforce each other and, together, they provide the information necessary for the complete understanding of biological concepts and processes that we ultimately strive for. This creates opportunities for zoologists. One could argue that now, more than ever, *integrative* biologists are needed in order to connect and synthesise the findings of the different specialised fields into wider concepts. One obvious example is interpreting the massive amounts of genetic and genomic data that are currently being collected. They need to be integrated to help understand form and function of the organism(s) in question.

From the above, we can extract several important points that we need to keep in mind, not only in our scientific approach but also in our attitude towards zool-

ogy and science in general, and not only when conducting research, but also when teaching. Firstly, concerning our attitude, we need to keep advocating that fundamental science is essential. Currently, there is a strong tendency in governments and funding bodies to especially fund applied science. That is, science that “delivers” in the short term. However, if this trend continues fundamental discoveries will come to a standstill and there will be nothing new left to apply. In other words, we will always need a very firm basis of fundamental scientific research from which discoveries can be used in an applied context. Secondly, concerning our approach, we should not be tempted to only focus on the latest scientific fads, but also continue to equip our students with broad biological knowledge. Students and professional researchers alike do need to know about and/or investigate basic biological processes of their species of interest. Only then can they recognize the valuable information that is necessary for general insights into morphology, function, evolution and ecology. Presenting such findings in an integrative biological context will emphasise that.

Zoological journals, like *Animal Biology*, have a pivotal role to play here, because they provide a platform for those who seek to integrate. We can actively encourage this by aiming to publish high quality papers with a focus on integration of the various disciplines within the broad field of zoology. Such disciplines can include behaviour, developmental biology, ecology, endocrinology, evolutionary biology, genomics, morphology, neurobiology, physiology, systematics and theoretical biology. This integration, i.e., piecing together findings from different biological disciplines to understand the biology of animals, is a crucial task that lies ahead for the new zoologists of the future.

Zoology is dead, long live zoology!

Joris M. Koene  
*Editor-in-Chief*